

a disk unit connected to the client computer and the server computer, the disk unit having disk storage media for storing data, a control unit, and a frame which integrates said disk storage media and said control unit into a single integrated packages,

wherein said client computer requests a function execution to said server computer,

wherein said server computer creates function information relating to execution of the function that has been requested to execute from said client computer, and

wherein said disk unit receives the function and the function information from the server computer, executes the function and restricts, based on the function information, accesses from external of said disk unit to the data stored in said disk storage media during execution of the function.

REMARKS

Attached hereto is a marked-up version of the changes made to the claims by the current Amendment. The attached is captioned "Version with markings to show changes made".

The present Amendment amends claims 1, 14, 15 and 20, cancels claims 12, 13 and 19 and leaves claims 2-11 and 16-18 unchanged. Therefore, the present application has pending claims 1-11, 14-18 and 20.

Claims 1, 3, 15, 17 and 20 stand rejected under 35 USC §102(a) as being anticipated by Ram (U.S. Patent No. 5,941,969); claims 12, 13, 14 and 19 stand

rejected under 35 USC §102(e) as being anticipated by Kanai (U.S. Patent No. 5,862,403); claims 2, 4, 5, 16 and 18 stand rejected under 35 USC §103(a) as being unpatentable over Ram and further in view of Bakow (U.S. Patent No. 6,058,394); claims 7-11 stand rejected under 35 USC §103(a) as being unpatentable over Delo (U.S. Patent No. 6,363,499); and claim 6 stands rejected under 35 USC §103(a) as being unpatentable over Ram in view of Bakow and further in view of Fong (U.S. Patent No. 6,292,879). As indicated above, claims 12, 13 and 14 are canceled. Therefore, the above noted rejections with respect to claims 12, 13 and 19 are rendered moot. These rejections with respect to the remaining claims 1-11, 14-18 and 20 are traversed for the following reasons.

Applicants submit that the features of the present invention as now recited in claims 1-11, 14-18 and 20 are not taught or suggested by Ram, Kanai, Bakow, Delo or Fong whether taken individually or in combination with each other as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

Amendments were made to the claims in order to more clearly describe features of the present invention not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, amendments were made to the claims to more clearly recite that the present invention is directed to the features contained within and the functions performed by a disk unit. According to the present invention the disk unit is connectable to a server computer and a client computer via a network wherein

the server computer manages a function that the client computer requests to execute and manages data stored in the disk unit.

As per the present invention, the disk unit includes a disk storage media for storing data, a control unit which includes a memory for storing a function and function information related to execution of the function sent from the server and a frame which integrates the disk storage media and the control unit into a single integrated package.

Further, according to the present invention, the control unit executes the function in response to a function execution request from the client computer and restricts, based on the function information, accesses from external of the disk unit to the data stored in the disk storage media during execution of the function.

The above described features of the present invention now more clearly recited in the claims are not taught or suggested by any of the references of record particularly Ram, Kanai, Bakow, Delo or Fong whether taken individually or in combination with each other as suggested by the Examiner.

The above described features of the present invention are not taught or suggested by the primary reference used by the Examiner Ram. Ram teaches a bridge for use in a file server that provides a direct link to data storage devices so as to satisfy a data request. According to Ram, the file server has one or more function specific processors including network processors (NP) and file storage processors (FSP) all operating in parallel and communicating over an inter-connect bus. Each FSP is also connected to one or more disk controllers which in turn manages one or more data storage devices.

Thus, in Ram the FSP perform the functions relative to the disk units. The FSP taught by Ram is not a disk unit. The FSP simply executes functions independent from both the disk unit or the disk controller. More specifically, the FSP taught by Ram is a file server not a disk unit. Further, the FSP taught by Ram is completely separate from the disk units.

The present invention differs substantially from that taught by Ram being that according to the present invention as now more clearly recited in the claims both the disk storage media and the control unit are integrated by a frame so as to form a single integrated packet for the disk unit. This allows for the disk unit to be connected at any point in a network and the disk unit itself would perform all of the desired functions no matter what its location. Thus, according to the present invention, the disk unit can operate independent of any other elements such as a file server processor as taught by Ram.

Therefore, Ram fails to teach or suggest a disk unit which includes disk storage media, a control unit and a frame which integrates the disk storage media and the control unit into a single integrated package as recited in the claims.

Further, Ram fails to teach or suggest that the control unit executes the function in the disk unit based on accesses external of the disk unit. Particularly, according to the present invention the control unit restricts accesses from external of the disk unit to the data stored in a disk storage media based on the function information. Such features are clearly not taught or suggested by Ram.

Therefore, Ram fails to teach or suggest that the control unit executes the function in response to function execute request from the client computer and restricts, based on the function information, accesses from external of the disk unit to the data stored in the disk storage media during execution of the function as recited in the claims.

Accordingly, based on the above, Applicants submit that the features of the present invention as now more clearly recited in the claims are not anticipated by nor rendered obvious by the teachings of Ram. Therefore, reconsideration and withdrawal of the above noted rejections of the claims based on Ram is respectfully requested.

Kanai very similar to Ram suffers from the same deficiencies relative to the present invention as recited in the claims. Kanai simply teaches a continuous data server apparatus having a plurality of buffer memory units for storing the continuous data read out by the data memory control units and to be given to the communications control unit. The Examiner's attention is directed to col. 14, lines 33-34 of Kanai. As is quite clear, Kanai fails to teach or suggest a disk unit which executes functions independent of any other apparatus such as, for example, the central control device 10 taught by Kanai. Kanai teaches in col. 13, lines 61-62 that the central control device 10 or an electronic computer are not packaged in a frame together with a disk storage medium and as such does not perform or execute functions in response to accesses to the integrated package as in the present invention.

Therefore, Kanai fails to teach or suggest a frame which integrates the disk storage media and the control unit into a single integrated package as recited in the claims.

Further, Kanai fails to teach or suggest that the control unit executes the function in response to a function execute request from the client computer and restricts, based on the function information, accesses from external of the disk unit to the data stored in the disk storage media during execution of the function as recited in the claims.

The above noted deficiencies of Ram and Kanai are not supplied by any of the other references of record whether taken individually or in combination with each other. Particularly, the above noted features of the present invention as recited in the claims shown above not to be taught or suggested by Ram or Kanai are also not taught or suggested by Bakow, Delo or Fong whether taken individually or in combination with each other as suggested by the Examiner.

Bakow very similar to the teachings of Ram and Kanai simply teaches the use of a manager server and an agent server which executes queries from client computers. However, it is quite clear that Bakow does not teach or suggest that, for example, the databases themselves 118 are constructed in a manner so as to execute functions independent of other elements in the network and to be a self contained integrated package including the storage media and the control unit as recited in the claims.

Both Delo and Fong suffer from the same deficiencies relative to the features of the present invention as recited in the claims. Namely, both Delo and

Fong teach the use of a server separate from the disk unit. Particularly, there is no teaching or suggestion in either of Delo or Fong that the disk unit is a self contained integrated package including the storage media and the control unit and that the control unit restricts external accesses to the data based upon the function information without assistance from any other element in the network as recited in the claims.

Therefore, based on the above, Applicants submit that the features of the present invention as now recited in claims 1-11, 14-18 and 20 are not taught or suggested Ram whether taken individually or in combination with Kanai, Bakow, Delo or Fong. Accordingly, reconsideration and withdrawal of the above noted rejections based on Ram individually and various combinations of Ram, Kanai, Bakow, Delo and Fong is respectfully requested.

The remaining references have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1-20.

In view of the foregoing amendments and remarks, Applicants submit that claims 1-11, 14-18 and 20 are in condition for allowance. Accordingly, early allowance of claims 1-11, 14-18 and 20 is respectfully requested.

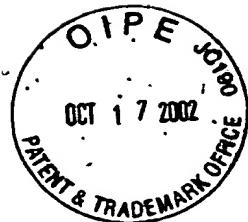
To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (501.38590X00). Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Please cancel claims 12, 13 and 19 without prejudice or disclaimer of the matter therein.

Please amend the claims as follows:

1. (Twice Amended) A disk unit, connectable to a server computer and a client computer via a network, wherein the server computer manages a function that the client computer requests to execute and manages data stored in the disk unit, the disk unit comprising:

disk storage media for storing data; and

a control unit ~~having~~which includes a memory for storing a function and function information relating to execution of the function that are sent from the server; and

a frame which integrates said disk storage media and said control unit into a single integrated package,

wherein said control unit executes the function in response to a function execute request from the client computer and restricts, based on the function information, accesses ~~for~~from external of said disk unit to the data stored in said disk storage media during execution of the function.

14. (Amended) A disk unit, connectable to a client computer via a network, comprising:

disk storage media to store data; and
a control unit, wherein; and
a frame which integrates said disk storage media and said control
unit into a single integrated package,
wherein said control unit receives function execute requests and
user ID information from a client unit via a network, and
wherein based on said user ID information, creates function
information to restrict the accesses from external of said disk unit to an access
area for data stored in said storage media at each function execute request, and
restricts accesses from external of said disk unit to the access area based on
said function information.

15. (Twice Amended) A method of controlling a disk unit connectable
to a server computer and a client computer via a network, wherein the disk unit
has disk storage media for storing data, a control unit, and a frame which
integrates said disk storage media and said control unit into a single integrated
package,

wherein the server computer manages a function that the client
computer requests to execute and manages data stored in the disk unit, the
method comprising the steps of:

receiving a function and function information relating to execution of
the function from the server;

executing the function in response to a function execute request from the client computer; and

restricting, based on the function information, accesses ~~for~~from external of said disk unit to the data stored in said disk storage media during execution of the function.

20. (Twice Amended) A client server system comprising:

- a client computer;
- a server computer connected to the client computer; and
- a disk unit connected to the client computer and the server computer, the disk unit having disk storage media for storing data; a control unit, and a frame which integrates said disk storage media and said control unit into a single integrated packages,

wherein said client computer requests a function execution to said server computer, and

wherein said server computer creates function information relating to execution of the function that has been requested to execute from said client computer, and

wherein said disk unit receives the function and the function information from the server computer, executes the function and restricts, based on the function information, accesses ~~for~~from external of said disk unit to the data stored in said disk storage media during execution of the function.